

## Build purpleheart patio lanterns

**Illuminate your next backyard party with the twinkle of these tea-light candle lanterns**

By Rick Campbell



Photo by Mark Burstyn

The soft glow from these tea-light lanterns will bring an intimate atmosphere to your next after-dusk get-together. I chose to build them using purpleheart because I had the [outdoor](#) setting of a [deck](#) or patio in mind, but there's no reason why they can't contribute to the ambiance of your home indoors as well. I've come up with two distinctive styles for you to choose from—make one of each for a complete set. The construction is similar for both designs; only the geometry and a few of the dimensions differ, so building both styles is easy.

These lanterns make a great weekend project. They aren't difficult to build and require a small quantity of materials. Purpleheart is a durable South American hardwood that naturally resists weathering. But that's not what first attracted me to this unique species. It was the stunning grain pattern and vibrant violet colour. If you prefer something less exotic, choose white oak, cedar, redwood or South American mahogany—all excellent choices for the outdoors.

I used a weatherproof Type II PVA adhesive to assemble the lanterns because it stands up well in wet conditions. To give the flickering flames a bit more flair, I found some translucent art glass for the side panels; you can find it at most stained-glass suppliers. There's a wide variety of colours and textures to choose from.

# Instructions

## Side Story

I began construction by making the framed side panels. Each consists of a pair of horizontal rails and vertical stiles connected with half-lap joints. The back faces of the panels are rabbetted to receive panes of glass.

It's much easier to prepare the half-lap joints before the stiles and rails are cut to width. The wood is larger this way and thus easier to handle safely. Begin by dressing wide boards to a 1/2" thickness, then prepare blanks that are equal in length to the rail and stile measurements given in the materials list. When you calculate the number of blanks required to yield all the frame parts, don't forget to factor in a generous allowance for the saw cuts.

Next, cut a block of wood from 3/4"-thick scrap that you will use to make a simple jig to keep the sides' sizes consistent. Make the block 8" long and the width of the openings in the centre of the frames-31/2" for the square lanterns and 2" for the six-sided version.

Install a dado blade in your tablesaw and mill 1/4"-deep x 1/2"-wide rabbets across the ends of the long stile blanks and 1/2"-deep x 3/4"-wide rabbets on the ends of the stubby rail blanks. You also need to mill 1/4"-deep x 3/4"-wide rabbets on the ends of the jig blocks that you prepared in the previous step.

Switch to a standard combination blade and slice off the rails and stiles by ripping 3/4"-wide strips from the blanks. After the parts are cut, reinstall your dado blade one more time and prepare a 1/4"-deep x 1/4"-wide rabbet on the inside edge of each frame member to accommodate the glass.

Whenever you're working on small parts like these, use a pushstick. It's essential for keeping your fingers safe.

## Frame Assembly

Now it's time to reveal one of the reasons for constructing that jig block. With glue applied to the half-lap joints, assemble your first frame using spring clamps to secure the corners. Before the glue grabs, place the jig block in the centre of the frame to square up the assembly. Repeat this process for each panel you need to build. When you're done, keep the jig block handy because you will use it again in the next step.

After the glue has cured overnight, tilt the tablesaw blade and position the fence to bevel both vertical edges of each frame. The angle of cut should be 45° for the square lanterns and 30° for the hexagonal design. Be precise with your work, or gaps will appear in the corners when you assemble the sides.

As you're making this bevelled cut, the position of the fence in relation to the blade is also critical. If the fence is too close, the teeth will cut into the top face of the frames. If the fence is positioned too far away, material will be left on the sides, preventing the outside corners from meeting when the panels are assembled. Fine-tune your set-up by making test cuts on scrap blocks that are the same width and thickness as your frames. When you're satisfied, bevel the sides of the frames with your jig block in place within the openings. The block reinforces the delicate assemblies as they travel over the blade, ensuring that the frames remain flat against the surface of the saw table.

When all the bevels are cut, dry-fit the side panels without glue to see how well they fit together. Rubber bands work well to hold the frames together temporarily while you step back and check your progress.

## From Base to Lid

Set the frame assemblies aside and turn your attention to the lid and base. As you can see from the plans, the 3/4"-thick lid panel matches the geometric shape of the lantern and is slightly bevelled on the top and sides for good looks. The base is identical to the lid except that it's made from 1/2"-thick material and it's flat on both faces. Both parts have an alignment block fastened to one face that fits within the walls of the lantern to centre the panels and register the corners.

Begin by cutting out the basic shape of the panels and the corresponding alignment blocks. If you're working on the square lantern, you simply cut the parts to size on a tablesaw, but if you're working on the hexagonal design, a couple of additional steps are required.

To create the hexagons, prepare blanks following the dimensions given in the materials list, then lay out the corners as

shown in the plan details. Cut corners freehand using a bandsaw, then smooth the edges by sanding to the pencil lines. There are ways to accomplish this last step with a tablesaw, but the bandsaw method is faster, less complicated and also safer.

Next, apply decorative bevels to the top of the lid panel. It doesn't make any difference if your lid has four sides or six, the approach is the same for both. Use a tablesaw with the blade tilted at a 5° angle from vertical. While holding the panel vertically on edge and flat against the fence, pass the lid over the blade to cut the bevels. It's important to note that the bevels don't extend all the way to the centre of the lid. You want to position the fence far enough away from the blade so that a flat area remains where the angles converge at the peak. This flat area needs to be wide enough to accommodate the 1 1/2"-diameter vent hole that you'll drill later. After bevelling all the surfaces on the top face, reposition the fence and chamfer the edges.

Before you go ahead and fasten the alignment blocks to the lid and base, verify that they will fit comfortably within the side panels. This requires that you reassemble the sides one more time with rubber bands. If necessary, sand the alignment blocks to fine-tune the fit, then glue them to the base and lid. Make sure the blocks are centred and the corners are aligned before leaving them to dry.

There's one more matter to take care of before final assembly. Chuck a 1 1/2"-wide spade bit in your drillpress and bore a 1/4"-deep recess in the middle of the base assembly. This is where the tea-light candle goes. A good way to find the exact centre is to scribe pencil lines between opposing corners of the alignment blocks. The point at which the lines intersect marks the middle. Use the same centre-finding technique to determine the location of the vent hole on the lid assembly. To prevent tearout, start boring the vent hole from one side, then flip the lid over and drill the rest of the way through.

## Final Assembly

Sand all your lantern parts with 180-grit paper, then you're ready for final assembly and finishing. Ask a friend to help: an extra pair of hands will make this phase of the project go smoothly. Apply glue to the bevelled vertical edges of the frames and assemble the side panels with celluloid packing tape stretched around the outside to hold the parts together. Packing tape is perfect for this application because it creates enough tension to achieve a secure bond without crushing the delicate frame corners.

Next, glue and clamp the lid to the top of the side panels. You don't need to glue the base because it's not permanently attached to the lantern-the idea is the entire top assembly lifts off to provide easy access to the candle.

## Through the Looking Glass

The only thing that's missing now is glass for the side panels. If you are going to cut the glass yourself, you will need a straightedge to serve as a guide, a felt-tip marker to lay out the cuts, oil for lubrication and a carbide wheel-cutter to score the glass. I also recommend that you wear heavy work gloves to protect your hands from cuts and safety goggles to shield your eyes.

Pad the surface of your workbench with several layers of newspaper, then place the sheet of glass flat on the bench and mark the required cuts. Dip the end of the wheel-cutter in oil, then press down firmly as you draw the tool across the surface of the glass, guided by the straightedge. You're not trying to cut the glass, just score the surface to create a weak point. Don't press too hard or you risk cracking the glass. Next, place a narrow wooden dowel directly under the scored line, and gently apply pressure to the glass on both sides until the glass snaps cleanly. If this is your first time cutting glass, buy some inexpensive window glass to perfect your technique.

Does all this sound like too much? You can always have a professional do the cutting for you. The best option is to take your lanterns to a glass shop and have the glazing custom-cut to fit your assembled lanterns. Install each glass panel with a bead of clear silicone caulking applied to the corners of the frames. The silicone is a good bonding agent that will help to cushion the glass from shock, so it will be more likely to survive if someone drops the lantern.

After applying the finish of your choice, you're ready to light some candles. Scented candles offer an appealing aroma to complement the comforting glow of the flickering flame, and citronella candles are perfect for enjoying an evening with fewer mosquitoes.

# Tools and Materials

Part	Material	Size (T x W x L*)	Qty.
<b>Square Lantern</b>			
Stiles	purpleheart	1/2" x 3/4" x 8"	8
Tails	purpleheart	1/2" x 3/4" x 5"	8
Lid	purpleheart	3/4" x 6" x 6"	1
Base	purpleheart	1/2" x 6" x 6"	1
Alignment blocks	purpleheart	1/2" x 4" x 4"	2
Glass panels		1/8" x 2 1/2" x 7"	6
<b>Hexagonal lantern</b>			
Stiles	purpleheart	1/2" x 3/4" x 8"	12
Tails	purpleheart	1/2" x 3/4" x 3 1/2"	12
Lid	purpleheart	3/4" x 7 1/16" x 8 3/16"	1
Base	purpleheart	1/2" x 7 1/16" x 8 3/16"	1
Alignment blocks	purpleheart	1/2" x 5 1/16" x 5 7/8"	2
Glass panels		1/8" x 2 1/2" x 7"	6

\* Length indicates grain direction

# Plan

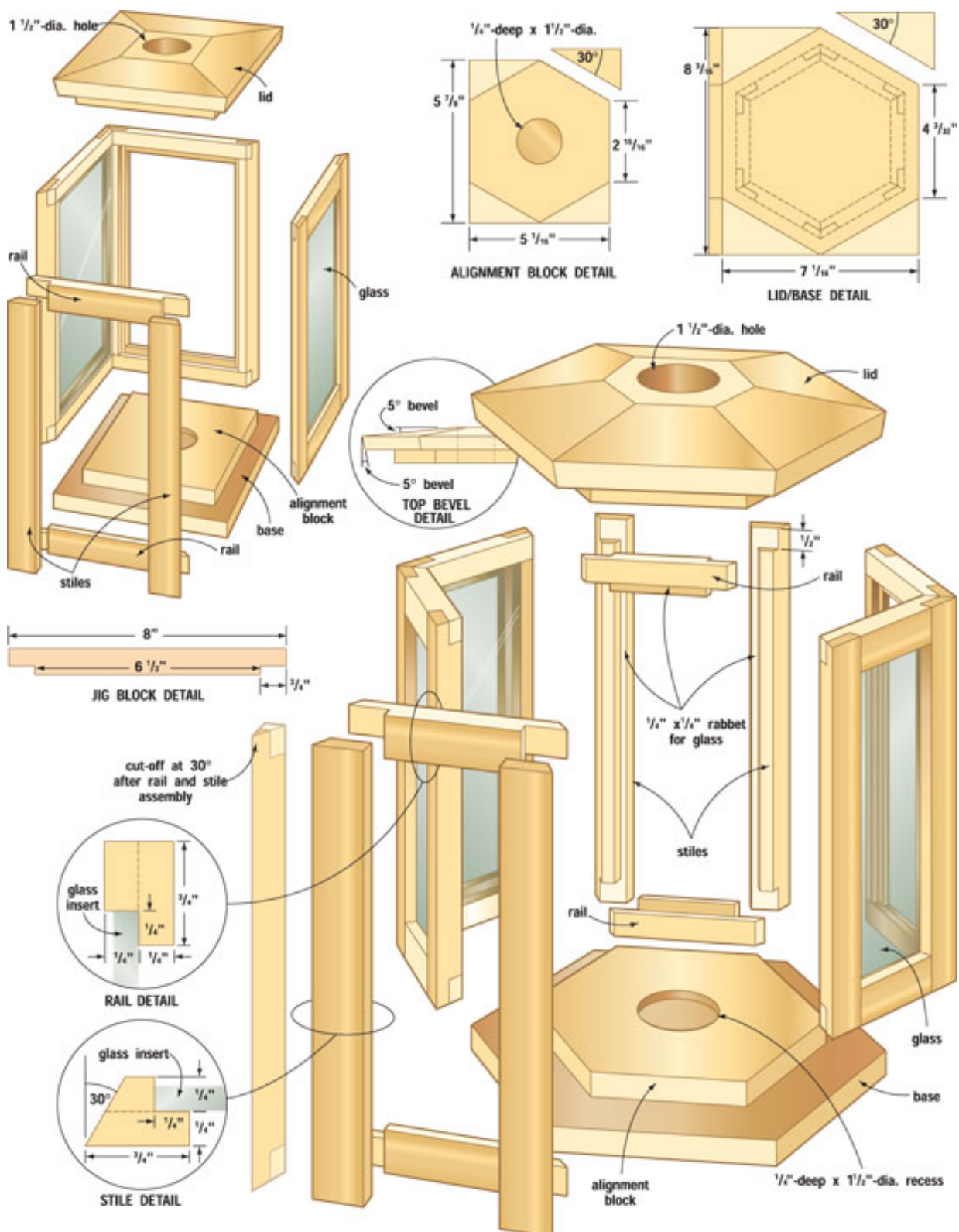


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